

What I claim is:

Claim 1. A thin-film magnetic head having an MR head portion containing magnetoresistive elements, wherein the following layers are formed on at least the surface of said MR head portion facing a recording medium:

(A) a lower layer composed of a thin film having a composition represented by the formula selected from the group consisting of:

formula (i): $\text{SiC}_X \text{H}_Y \text{O}_Z \text{N}_W \text{F}_T \text{B}_U \text{P}_V$

where $X = 0.5 - 26$, $Y = 0.5 - 13$, $Z = 0 - 6$, $W = 0 - 6$, $T = 0 - 6$, $U = 0 - 1$ and $V = 0 - 1$, in terms of atomic ratio, and

formula (ii): $\text{SiH}_Y \text{O}_Z \text{N}_W \text{F}_T \text{B}_U \text{P}_V$

where $Y = 0.0001 - 0.7$, $Z = 0 - 6$, $W = 0 - 6$, $T = 0 - 6$, $U = 0 - 1$ and $V = 0 - 1$, in terms of atomic ratio; and

(B) an upper layer composed of a diamond-like thin film having a composition represented by the following formula: $\text{CH}_a \text{O}_b \text{N}_c \text{F}_d \text{B}_e \text{P}_f$

where $a = 0 - 0.7$, $b = 0 - 1$, $c = 0 - 1$, $d = 0 - 1$, $e = 0 - 1$ and $f = 0 - 1$, in terms of atomic ratio.

Claim 2. The magnetic head according to Claim 1, wherein the overall thickness of said lower layer and said upper layer is 40 Å or less.

Claim 3. The magnetic head according to Claim 1 or 2, wherein said lower layer and said upper layer are formed by vapor deposition method.

Claim 4. The magnetic head according to Claim 1 or 2, wherein said lower layer has a thickness of 20 Å or less, and said upper layer has a thickness of 20 Å or less.

Claim 5. A method for producing a thin-film magnetic head, wherein vapor deposition is conducted on at least the surface of said thin-film magnetic head facing a recording medium, in such a manner that the following layers are formed thereon:

(A) a lower layer having a composition represented by the formula selected from the group consisting of

formula (i): $\text{SiC}_X \text{H}_Y \text{O}_Z \text{N}_W \text{F}_T \text{B}_U \text{P}_V$

where $X = 0.5 - 26$, $Y = 0.5 - 13$, $Z = 0 - 6$, $W = 0 - 6$, $T = 0 - 6$, $U = 0 - 1$ and $V = 0 - 1$, in terms of atomic ratio, and

formula (ii): $\text{SiH}_Y \text{O}_Z \text{N}_W \text{F}_T \text{B}_U \text{P}_V$

where $Y = 0.0001 \cdot 0.7$, $Z = 0 \cdot 6$, $W = 0 \cdot 6$, $T = 0 \cdot 6$, $U = 0 \cdot 1$ and $V = 0 \cdot 1$, in terms of atomic ratio; and

(B) an upper layer composed of a diamond-like thin film having a composition represented by the following formula: $\text{CH}_a \text{O}_b \text{N}_c \text{F}_d \text{B}_e \text{P}_f$

where $a = 0 \cdot 0.7$, $b = 0 \cdot 1$, $c = 0 \cdot 1$, $d = 0 \cdot 1$, $e = 0 \cdot 1$ and $f = 0 \cdot 1$, in terms of atomic ratio.

Claim 6. The method according to Claim 5, wherein deposition is conducted in such a manner that the thickness of said lower layer becomes 20 \AA or less, and the thickness of said upper layer becomes 20 \AA or less.

Claim 7. The method according to Claim 5, wherein vapor deposition is conducted by applying a negative bias voltage to the thin-film magnetic head.

Claim 8. The method according to Claim 7, wherein said bias voltage is applied by selfbias generated by an applied DC source or an applied radiofrequency power.

Claim 9. A magnetic disk device having at least one slider equipped with the thin-film magnetic head according to Claim 1.